Water Policy in Manila

by Estrella M. Maniquis

Manila waterworks employees search for illegal pipe connections

Residents of the middle-class Better Living Subdivision on the southern flank of Metro Manila consider themselves lucky to have water service from the city's water utility. No matter that the water flows from their faucets for just a few hours per day, and only every other day. Up until the mid-1980s, residents had to make do with water from pump wells and delivery services. The water still had to be boiled for drinking. Residents often drove to work with car trunks full of water containers to be filled.

For people in the lower-income neighbourhoods around the subdivision, who do not have service from the Metropolitan Waterworks and Sewerage System (MWSS), pushcart vendors are still the main source of water. And they pay the vendors much more for water than their neighbours in Better Living pay for water from the faucet.

WATER WOES

Access to water is a growing problem in Manila, according to research fellow Dr Cristina David. She is conducting an IDRC-funded study on water distribution and household demand in the city. In terms of efficiency -- which considers the proportion of water not paid for, hours of availability, and the ratio of people to connections -- Metro Manila "has the worst record of all" compared to other Southeast Asian capitals. Sixty percent of the water produced by MWSS is lost to illegal connections and leakages, compared to an average of 30% among developing countries. This lost water is referred to as nonrevenue water (NRW). "Increases in water distribution, resulting from major investments by the MWSS over the past 25 years, have been almost entirely lost as NRW," says Dr David.

In Manila, people have access to water for an average 16 hours per day, while in most capitals in the region, service is provided for the whole day. Manila has six times as many people per connection as Singapore and Kuala Lumpur, and twice as many as Bangkok. While Singapore and Kuala Lumpur are entirely covered by piped water connections, and Bangkok is 79% covered, Metro Manila has only 69% coverage. Jakarta fares even worse with 25%. Even in the better-off Asian cities, authorities are having trouble ensuring that supplies meet the increasing demand and water shortages may not be far off.

Water sold privately results in substantial revenue losses for MWSS that could otherwise be pumped into new investments and better service. Companies, and households that can afford to, sink their own tube wells, resulting in environmental damage. Groundwater extraction, which is not effectively regulated by municipal authorities, has outpaced the natural recharge rate of the aquifer and is lowering the water table. Demand in coastal areas is also causing salinization of the aquifer.

POOR PAY MORE

Dr David's study, begun in 1995, involved a survey of 506 households across the metropolis. It was conducted for the Philippine Institute for Development Studies (PIDS), an agency of the country's planning body. Dr David and research associate Arlene Inocencio led a team that looked at households using a variety of water services and representing various income levels. The researchers found MWSS coverage to be about 60% of households, with another 10% relying on tube wells and private waterworks and 30% on vended water.

They found that poor people, who depend mostly on vended water, pay much more for water than wealthier people and receive poorer service. Households with official MWSS connections pay the lowest price, averaging PHP5.50 (US$0.22) per cubic metre. In contrast, water purchased indirectly from MWSS and delivered by hose costs about PHP22 per cubic metre while MWSS water delivered by container to households costs as much as PHP72 per cubic metre.

STOLEN WATER

Privately sold water comes from public and private faucets and even directly from water mains. It is delivered to end-users via plastic hose or is transported in containers by pushcart, bicycle or other vehicles. The study showed that much of the water actually comes from MWSS and is "stolen" through illegal connections and by meter tampering. The PIDS researchers located squatter colonies where MWSS water is systematically distributed from mainlines and government buildings. Fees based on household size and the number of outlets are then paid to whoever dispenses the water.

"It is a puzzle why officials cannot devise a system of charging water from these areas just like the private electrical company is doing. Most cases of tampering would also be relatively easy to detect," says Dr David. Changes are beginning to be implemented to rid MWSS of graft and inefficiency. And plans to privatize much of its operations is a step in that direction.

BUYING FROM THE NEIGHBOURS

Because privately sold water can cost 13 times as much as water from direct MWSS connections, lower income families often attempt to save time and money by buying relatively cheaper water from neighbours with connections. This is inconvenient and time-consuming, although less so than other options. "Even assuming a lower opportunity cost of labour among the poorer households, the total cost of such vended water, when those factors are considered, may easily reach PHP45-55 per cubic metre or 8-10 times the cost of water from an MWSS connection," says Dr David.

As a washerwoman named Adelaida says, "I used to be able to take people's laundry home where I could keep an eye on my kids. Now I have to do it in the client's home. It is too much trouble and expense to

have to lug all that water to our house."

A BOAT RIDE AWAY

In Manila's poor Tondo district, residents in one area have to take a boat ride just to get to a water source. One five-gallon container of water costs PHP1 or more and no less than PHP7 if it is delivered.

At one point, public faucets were put up by the local government and run by cooperatives but MWSS closed them down because of mounting bills. Faced with acute water shortages, local officials are now forced to operate these faucets surreptitiously with the unofficial blessing of waterworks officials.

Dr David points out that despite plans to privatize MWSS, water tariffs still must be regulated by government because the production and distribution of water is by nature a monopoly. Also, the fact that a significant amount of water losses are due to illegal connections and meter-tampering -- and hence may be relatively simple to reduce -- should be considered when evaluating bids for the right to operate the MWSS water system. Preliminary results from her study indicate that price adjustments have a significant impact on demand, thus appropriate pricing would have a positive impact on household demand management. The study also indicates that households, rich and poor alike, are willing to pay much higher water prices than the MWSS water rates, if they receive better service.

VICIOUS CIRCLE

For now, Manila faces a vicious circle: the municipal water service is so unreliable that people object to higher MWSS water charges. Indeed, higher water charges would not necessarily improve the efficiency of MWSS operations. Without additional revenues, however, the government lacks the funds to expand water supply, which would still be needed to satisfy projected demand -- even if the amount of nonrevenue water is reduced significantly. This dilemma can only be resolved by both raising MWSS water charges and implementing appropriate institutional reforms.

If the reforms underway can improve confidence in MWSS and reduce free riding, then more people would have access to water, at a lower cost to the environment in terms of groundwater depletion. In the meantime, residents of Better Living will no doubt continue to stock up on water every time the taps come on.

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Cambodia: Bringing Sewage Treatment Onstream

by Emilia Casella

Project leader Sem Sundara shows off Battambang's new sewage treatment plant

The Cambodian town of Battambang has two new attractions -- the country's first sewage treatment plant and a beautiful new pond for wedding photos. Conveniently, they are one and the same place.

But as well as serving as a backdrop for special pictures, the new sewage treatment plant is bringing about some less popular changes in Battambang. The 'polluter pay' concept is coming to the northwestern provincial town -- meaning that about 12,000 home and business owners will soon have to pay to flush their toilets.

User fees

In addition, about 80 families who for the past 3 months have been using the clean, treated water from the plant to water their vegetable plots will soon have to pay for the privilege. No one knows yet how high the fees will be, but IDRC, which supports the Battambang Engineered Wetland Project and currently supplies US$1,800 monthly to run the treatment plant, is helping the government find ways to make the operation support itself. Fees are one way. So is a fish farm on the site, a plan to dry sludge for fertilizer and the possibility of generating power using sewage-created biogas.

"Traditionally or culturally, water, like sunlight, is a free resource that people have never thought about paying for. Now people have to think about it," says Chou Meng Tarr, a Cambodian socio-economist who, with IDRC support, has been working with the villagers in nearby Chamka Samroung, where the treated water is being used.

Raw sewage

Before the plant opened in December 1994, most of Battambang's sewage flowed directly into the Sangke River -- a source of drinking and irrigation water for many local residents. Another portion was diverted into a holding pond outside town, where local villagers used the sewage water directly on their gardens.

The situation is similar all over Cambodia. In the capital, Phnom Penh -- built at the convergence of the Mekong, Tonle Sap, and Bassac Rivers -- raw sewage from one million inhabitants flows into all three waterways. In the south end of town, the Beng Trabek Lake, which doubles as the city's main sewage outlet, is the site of intensive vegetable gardening.

Disease outbreaks

These vegetables are sold in local markets, contributing to outbreaks of typhoid, cholera, and other contagious diseases, according to the World Health Organization (WHO).

Sem Sundara, the project leader and a chemist with the Ministry of Environment, hopes that Battambang's sewage plant will change such situations by being a model for other new plants around the country.

Aging sewer network

Like Phnom Penh and other major towns, Battambang already had a network of sewage pipes, built in the 1940s during French colonial rule. However, over 21 years of war have taken their toll: entire systems are clogged. During the rainy season, many streets become wading pools of water and sewage sludge.

When the Dutch NGO *Sawa* began fixing Battambang's pipes, "they literally had to send down men to shovel out the stuff. They found all sorts of mines, grenades and unexploded ordinances in there," says Doug Titus, the plant's consulting biologist.

According to Sem Sundara, "In Phnom Penh, you could easily spend $6 million to $7 million just to repair the pipelines." After the pipes were cleaned and repaired, *Sawa* spent $460,000 to build Battambang's sewage plant, on a model called a modified, engineered wetland.

Sewage treatment process

Sewage first enters detention ponds, where solids are allowed to sink to the bottom, to be later cleared out, dried, and sold as fertilizer. The dirty water is then pumped into huge oxidation ponds, where a combination of algae and sunlight causes huge fluctuations in the oxygen and pH levels of the water -- killing dangerous germs. After about 20 days, the water is pumped into a fish pond and a wetland pond, where for a further 9 days the water -- away from human contact -- loses any remaining germs.

The resulting water, although still high in nitrogen and phosphorous, meets WHO bacterial content standards for irrigation, says Tep Boonny, vice director of the provincial environment department. The nitrogen is actually a benefit to the vegetable growers of Chamka Samroung who are using the cleaned water for their gardens. Farmer Hun Sin has been using collected rainwater on half of his garden and clean water from the sewage plant on the other half. "The plants that we use the treated water on grow quicker," says Sin, who pours 200 to 400 cans of water a day on his lettuce, cucumbers, tomatoes, and herbs. Sin says if he had to pay for the treated water he would probably go back to using only rainwater from a pond on his land.

Resolving conflict

The new water supply has caused some upheaval in the small community. "Before, the system for dividing the water was very bad," says farmer Tlok Houn. "Some people wanted the water and plugged the canal to

divert the water onto their land. Then, the next person would do the same thing. People were arguing over the water," he says, adding that two neighbours -- a sister and brother -- actually came to blows.

"The problem is that there are people who have guns ... and the ones who have guns can access the water more easily," says Chou Meng Tarr. She has worked with the community and has now set up water users' groups to try to schedule access to the water canals that flow from the treatment plant. The water users' groups will also help people understand that the sewage plant is owned by the community -- not by the NGO that built it.

"We want to raise awareness that they are responsible for their environment and must be involved in the maintenance and use of resources," she says. However, she adds, the concept of a sewage tax or fees for water will likely face resistance.

Water fees necessary

Gregory Woodsworth, a Canadian adviser supported by IDRC in the Environment Ministry in Phnom Penh, says the fees may not be popular, but they are necessary. The project "is starting to look at costing natural resources as if they do have a value. I flush my toilet every day and I don't pay for it. You can't continue that with a large population. It's not sustainable."

IDRC is currently working with the Royal Government of Cambodia to apply the lessons learned in the Battambang case to new water and sanitation infrastructure development in other areas of the country. Major tourism development investment is going into Siem Riep town, the site of the famous Ankor Wat temples, and in the coastal resort town of Sihanoukville (formerly Kampong Som). It is hoped that private sector money from these develpoment projects can be used to help provide appropriate and sustainable sanitation methods to these communities, based on methods developed by the Ministry of Environment, in cooperation with IDRC.

Emilia Casella, Gemini News Correspondent, reporting from Cambodia.

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